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# ICT for sustainable tourism: a challenging relationship?

ALI, Alisha and FREW, Andrew J.

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**ICT for sustainable tourism – a challenging relationship?**

From genetics to sociobiology, fecundity and longevity are demonstrably key attributes – being in the right place at the right time, being attractive and of value will inevitably lead to proliferation whether in organisms or ideas. It could be argued that with regards to the sustainability dimension of eTourism, such a juncture has been reached. Research in eTourism has advanced considerably with an increasingly extensive researcher base using an even more precise vocabulary and language and achieving important recognition by the adoption of its findings by businesses and governmental organisations worldwide. The field is beginning to take on the hallmarks of a mature discipline area and this in turn reflects the huge global importance of tourism and the impacts of technology upon it.

Researchers in the fields relevant to sustainability have been far from idle, however, sustainable tourism research enjoys a rather limited corpus of knowledge with much of the work adopting traditional approaches. Difficulties do exist in translating the notions and concepts of sustainable tourism into a practical reality, which can be adopted and facilitated by the industry. That said, there is still accelerating recognition in today's society of the need to address the many challenges in the often negative pressures arising from environmental, economic, social and cultural change. It is thus perhaps timely that researchers within eTourism turn their attention to sustainability issues and give consideration to how technologies may offer a step change in practice founded upon robust research. Understanding this relationship between information and communication technologies (ICT) and sustainable tourism is of vital significance if the tourism industry is going to continue its growth and prosperity. This special issue presents a selection of research work in the domain of ICT for sustainable tourism, a field which may be considered as both a sub-set of eTourism and of sustainable tourism. An interesting developmental context for this is an awareness that the field of eTourism moved from an early emphasis on technology and computing *per se* to business and management applications whilst the last decade has seen huge developmental interest in social and cultural aspects of technology adoption. All this against a background of ever-greater global inter-networking of systems and integration of applications.

The global economic importance of tourism is of course well recognised, if not well understood and in recent years growth forecasts have gone hand in hand with debates concerning its development and its impacts. In particular environmental and other sustainability concerns have taken a back seat as both developing and developed countries intensify their focus on the economic benefits. Tourism, like many other areas of economic activity has generated negative environmental and socio-economic impacts which paradoxically are leading to the potential and actual degradation of its central attraction. However, the evidence is clear that the tourism industry must begin to seek the right balance between the level of economic growth and maintenance of the environment.

Climate change is clearly another area of significant concern and tourism's contribution is coming ever more under scrutiny with sustainable tourism advocated as a mechanism for achieving economic development whilst protecting, preserving and enhancing the environment. However, most of the work on sustainable tourism has focused on theorising and policy formulation while the real challenge lies in finding practical tools for tourism professionals to transform theory into action and there appears to be a widening gap between the principles of sustainable tourism and what is being actually achieved. The range of technologies, applications and approaches are increasing daily and include for example;

Geographical Information Systems, Carbon Calculators, Global Positioning Systems, Economic Impact Analysis Software, Climate Information Management, Wireless and Mobile Technologies, Location Based Services, Intelligent Transport Systems, Community Informatics, Virtual Tourism, Augmented Realities, Radio Frequency Identification and Gamification.

There is, alas, an apparent reluctance to use technology and tourism professionals are often unaware of how technology can assist them in different aspects of their business operations and despite the exploitation of technology in these areas and the advancing literature stream, there is still limited insight into how technology can support sustainable tourism development. Future trends therefore indicate that stakeholders need to find some solution to ensure that tourism is developed in alignment with the principles of sustainable tourism development and that the theorising and policymaking are translated into practical applications. The potential strength of ICT for sustainable tourism will be governed by the way it is used by tourism stakeholders. The papers in this special issue add some further contribution to this important corpus.

Destinations are key attractors of the tourist and are vital tourism stakeholders as destinations are the places where the impacts of tourism are most heavily felt. The paper by Ali and Frew, **Technology Innovation and Applications in Sustainable Destination Development**, introduces information and communication technologies as an innovative approach to managing sustainable tourism development from a destination management perspective. The research outlined in this paper builds upon Hjalager's (1997) analytical typology for sustainable tourism innovation and is focused from the perspective of destination managers and how technologies may be used to mitigate or enhance tourism impact. The work specifically seeks to advance tourism innovation research and demonstrate new uses of technology and the wider applications for sustainable tourism. A collection of technology based tools and their uses were examined for sustainable tourism development and how these tools can foster destination innovativeness.

Tourism businesses continuously face increasing pressures to keep abreast of changes to the operating environment such as economic, social, demographic and technological changes, which threaten their competitiveness and survival. The accommodation sector is clearly a key component of the industry and the paper by Scarinci and Myers, **A Semantic Web framework to enable sustainable lodging best management practices in the USA**., examines ICT and Sustainable Tourism from the perspective of the hotel industry where the ability to demonstrate robust environmental credentials is increasingly important. However, in common with most countries, the USA has a complex array of proposed standards and guidelines and indeed most schemes are at best statewide and voluntary. This paper focuses on the constraints inherent in lack of agreed standards or good practice and offers a mechanism through which aggregation of identified good management practice. The benefits of providing a roadmap to compliance and conformance to good standards are potentially of real practical benefit to hotels and customers alike. The authors offer a framework drawing upon standards compliance information from property sites to infer a ranking in green tourism across twelve third party US standards bodies. They combine domain ontologies in a semantic knowledge base to describe the relationship between best management practices and accreditation criteria from each of the sustainable tourism standards bodies. All properties may then have their conformance across all green lodging programmes evaluated. The authors argue that implementation of this theoretical framework could provide actionable

information to both hotels and tour operators for example. Consumer decision-making would be from a better information base as would hotel management practice.

While our world as we know it is increasingly being transformed into an mWorld where wireless technology and mobile networks have advanced to such a level that people can communicate anywhere at anytime. As reliable Global Positioning System units become cheaper, a field of devices called geoware is emerging and providing an awareness of location and are used to enhance performance or provide new information. The commercial application is often referred to as Location Based Services. Global Positioning Systems (GPS) may have been around since the 1970s and can be used for navigation and location. Information sent to the satellite is used to determine the geographic location of the user, this data is collected and recorded in Global Positioning Systems receiver and can be transferred to a computer and be displayed on mapping software. The benefits of Global Positioning Systems reside in their ability to produce location specific information for both the tourists and the destinations and to track tourist movements, which can be useful in managing visitor use of an area and for simulating future scenarios. Global Positioning Systems will therefore be useful for in managing information related to making decisions regarding the best use of space and time at the destination. Spangenberg's paper on the **Development of a mobile toolkit to support research on human mobility behavior using GPS trajectories** explores an interesting perspective on GPS tracking. GPS tracking a well-established method in the world of tourist movement research, however, recorded pathways are an objective record and offer interesting and useful ways of looking at such movements in space and time and more is required to seek a fuller understanding of this tourist behaviour. Spangenberg presents the GimToP Toolkit as a means of conveniently integrating GPS tracking with more subjective data acquisition approach whereby survey data acquisition is integrated within a single mobile application. The outlines the components of the Toolkit and through illustrative cases, offers new possibilities for supporting the sustainable development of destinations.

The final paper in this issue, **Green ICT practices in event management: case study approach to examine motivation, management and fiscal return on investment**, which again uses cases, is an exploratory piece by Slocum and Lee looking this time at some practical challenges and outcomes from the world of community special events. Following a discourse of the background context, two festivals are considered from environmental, economic and social impact perspectives. An interesting comparison of 'pros and cons' is developed with a contrast drawn between the approaches and priorities of each festival in their technology adoption strategies and the impacts on the sustainable operations.

References
Hjalager A (1997) Innovation patterns in sustainable tourism: an analytical typology. Tourism Management 18: 35-41. doi:10.1016/S0261-5177(96)00096-9


Alisha Ali and Andrew J. Frew
Guest Editors